

***Preliminary Draft***

# **Acute Care Services Chapter**

## **District of Columbia State Health Systems Plan**

**State Health Planning and  
Development Agency  
District of Columbia  
Department of Health**

**ACUTE CARE SERVICES**

**TABLE OF CONTENTS**

<b><u>TITLE</u></b>	<b><u>PAGE</u></b>
<b>I. INTRODUCTION.....</b>	<b>2</b>
<b>II. BACKGROUND AND TRENDS.....</b>	<b>2</b>
<b>III. SUMMARY RESOURCES INVENTORY AND HISTORICAL UTILIZATION OF SERVICES.....</b>	<b>3</b>
<b>IV. BED NEED PROJECTIONS.....</b>	<b>21</b>
<b>V. CRITERIA AND STANDARDS.....</b>	<b>30</b>
<b>VI. GOALS AND OBJECTIVES.....</b>	<b>34</b>
<b>VII. REFERENCES.....</b>	<b>37</b>

### ACUTE HEALTH CARE SERVICES

#### I. INTRODUCTION

Acute health care services are generally defined as adult medical/surgical, obstetrical, and neonatal and pediatrics services that are provided in an inpatient facility during a 30-day period or less. Services that are provided in a similar setting for more than 30 days are usually considered chronic care services. The acute care services are delivered by eight, non-federal general hospitals located within the District of Columbia.

Two federal hospitals are located in the District of Columbia: Walter Reed Army Medical Center and the Veterans Administration Medical Center. Admissions and health care services at the military hospitals are limited to those individuals and their families that meet specific military requirements for access to these facilities. Utilization of military health care services is governed by active duty status and/or retirement benefits. Military retirees with health care benefits through commercial payors or TRICARE (military's managed care option) are permitted access to nonfederal hospitals.

The following is a comprehensive list of healthcare issues and trends in the District of Columbia's acute care sector affecting the delivery and utilization of services. Items on the list include both national and local concerns:

- The decrease in inpatient admissions and average length of stays;
- Flexibility in the use of inpatient hospital beds;
- The District's health reform initiative and increase in focus on primary care;
- Medical malpractice insurance reform;
- Advances in medicine and surgical technology;
- Shifts to outpatient diagnostic procedures;
- The use of case-mix indices to determine reimbursement rates;
- Shortage of health professionals;
- Increase in expanded services in provider office settings; and,
- In- and out-migration and its effect on market share.

#### II. BACKGROUND AND TRENDS

Overall spending across the nation on hospital services has slowly grown over the past three years from 2.9 percent in 1998 to 83 percent in 2001. From 1997 to 2001, spending on hospital care in the U.S. increased \$83.6 billion according to a PricewaterhouseCoopers study. The most important source of growth in the nation's hospital spending was an increase in patient volume. Growth in the population and an increase in utilization per capita were contributing factors in the volume increase.

The spending increase - 34.4 percent attributed to increased utilization, 21.0 percent to population growth and 55.4 percent to an increase on spending on hospital care – is moderating and it is expected that it will be 5.5 percent by the end of 2003. Labor costs, pushed up by the

nursing shortage, account for the largest share of the current growth in spending on hospital services and are expected to continue to be a key driver in the cost of care.

### ***Major Realignment in the District Health Care Environment – 2001 and 2002***

The years 2001 and 2002 were very significant in the evolution of health care delivery in the District from a number of different social, economic and political perspectives. Because of the geopolitical climate of the Washington metropolitan area, during this time period, the threat of bioterrorist attacks became ever prevalent. Although, normally resistant to economic downturns, the District of Columbia during this period, suffered along with other state governments very large deficits in its state budget.

Major shifts in the health care environment occurred in 2001 and 2002 that greatly impacted the delivery of health care services in the District of Columbia. Two acute hospitals that formally reported bed statistics to the District of Columbia Hospital Association (DCHA) during this period, closed – D.C. General Hospital (DCGH) (closed in June 2001) and Columbia Hospital for Women (closed October 2002). Bed totals for these facilities are not included in **Table 1**. More than 500 beds were removed from the system as a consequence of these two hospitals closing.

During the time period between 2001, the D.C. Health Care Alliance was in its infancy stage of development and struggled with becoming fully operational. At the close of 2001, the Alliance reported enrollments of eligible individuals totaling almost 25,000 District residents.

Hospital emergency room utilization and the challenges created by the intense nature of trauma services as a result of the closure of D.C. General Hospital, was a predominant theme during 2001 and 2002. Overcrowding of District emergency departments of other hospitals, impacted negatively on accessibility and availability of trauma and emergency services to District residents, particularly east of the Anacostia River.

More significantly, the financial difficulties of Greater Southeast Community Hospital and the closure of DCGH during 2001 and 2002, greatly affected city-wide Intensive Care Unit/Coronary Care Unit (ICU/CCU) bed capacity, diversions of ambulances, emergency medical services, local and regional emergency rooms causing a huge domino effect and putting a great demand on the resources of numerous stakeholders.

These events together with the downturn in the national economy, marked a significant destabilization in the health care marketplace during this time period in the District, and uncertainty occurred in the every sector of the health care delivery system.

### **III. SUMMARY RESOURCE INVENTORY AND HISTORICAL UTILIZATION OF SERVICES**

#### **A. Acute Care Service Inventory**

## 1. *All Acute Care Beds*

Licensed beds are those beds which are authorized by the District of Columbia Health Regulations Administration (HRA) on an annual basis and which technically represent a hospital's inpatient capacity. On a day-to-day basis, however, all of these beds may not actually be in use. The hospitals have the authority to utilize this licensed supply of beds, but may not exceed their licensed number. Hospital beds are also licensed according to a service category, such as medical-surgical, intensive care (ICU), coronary care (CCU), obstetrical-gynecological, pediatric and neonatal service.

Operating beds, on the other hand, represent somewhat of a clearer picture of a hospital's annual inpatient capacity and the demand for services. The number of operating beds may change on a daily basis. In addition, hospitals may not readily have the ability to place licensed beds into operation. For hospitals to open more beds first the demand for the service must exist and then they must recruit, attract and retain a specialized workforce. Mobilizing beds quickly can become an issue in the event of "surge capacity" or in the case of an extraordinary emergency. In the event of a disaster, the ability to make staffed beds immediately available and serviceable could become crucial.

The licensed and operating bed as of September 2002 of each facility is shown in **Table 1**. Many of the facilities are tertiary referral centers that feature specialties with a wide regional referral base.

<b>Table 1. Licensed and Operating Beds</b>			
2002			
Facility	Licensed Beds	Staffed Beds	% Staffed to Licensed
Children's National Medical Center	239	188	78.7%
George Washington University Hospital <sup>2</sup>	335	231	65.8%
Georgetown University Hospital	582	327	56.2%
Greater Southeast Community Hospital	470	290	61.7%
Howard University Hospital	470	294	62.6%
Providence Hospital	382	330	84.4%
Sibley Memorial Hospital	364	222	64.5%
Washington Hospital Center	874	855	97.8%
Total	3,705	2,737	73.9%

Note: D.C. General inpatient services were closed June 2001 Columbia Hospital for Women closed officially in the 3<sup>rd</sup> quarter of 2002, was unable to provide and did not report data to DCHA for 2001; therefore the hospital is not included in bed count numbers. George Washington University constructed a new facility that officially opened in 3<sup>rd</sup> quarter 2002. Licensed bed numbers reflect the new bed configuration. This data excludes bassinets.

Source: D.C. Department of Health, Health Regulation Administration  
District of Columbia Hospital Association (DCHA) *Bed Capacity and Occupancy Report, 2003*

Four other facilities that provide hospital care are not included in this chapter due to their specialization. The facilities include rehabilitation providers, National Rehabilitation Hospital, Hospital for Sick Children, Medlink Hospital and Hadley Memorial Hospital. Hadley Memorial Hospital converted to a long-term acute care facility, effective February 12, 2001. Medlink Hospital provides long-term chronic care and some long-term acute care hospital services. Three psychiatric facilities – Psychiatric Institute of Washington, Riverside Hospital and Saint Elizabeths Hospital – are also not included.

The District is home to three medical schools – Howard University College of Medicine, Georgetown University School of Medicine, and George Washington University School of Medicine and Health Sciences. Each of these academic centers has acute care hospitals affiliated with it, which provide training for medical residents.

In the District, there is one pediatric specialty acute care hospital – Children’s National Medical Center a regional referral center; and one regional integrated delivery system (MedStar Health) that provides community-based and tertiary levels of health care services in Washington, D.C., and Maryland. Patients are referred to the system nationally and from outside the United States.

In addition to the hospitals described, the Metropolitan Washington population is served by several other hospitals located in Maryland and Virginia. The proximity of these medical centers suggests the need for additional metro-wide regional planning for hospital services.

In the first quarter of 2002, the eight District acute hospitals plus Columbia Hospital for Women staffed a total of 3,888 general acute care beds. Those hospitals provided a total of 782,937 days of care to patients, for an average occupancy rate of 75 percent of staffed beds. This number is exclusive of beds in service for rehabilitation, hospice, and long-term care. Between 1995 and 1999, the annual occupancy rate for general acute care beds remained fairly constant, averaging 70 percent of staffed beds. However, as shown in **Table 1**, not all licensed beds were in service. Some are more or less permanently idled, while others have been temporarily taken out of service due to the staffing shortages or to accommodate renovation projects.

Currently, the number of District hospitals, including Children’s National Medical Center, who provide acute care services’ overall licensed bed capacity decreased by 247 beds, as shown below:

- Inpatient services at D.C. General Hospital were replaced by a contractual arrangement with three existing District hospitals (Greater Southeast Community Hospital, George Washington University Hospital, and Children’s National Medical Center);
- Hadley Memorial Hospital reclassified acute care beds to long-term care beds;
- George Washington University Hospital received approval to replace its old 544-bed facility with a new 371-bed hospital (335 acute care beds, 20 psychiatric beds, and 16 medical rehabilitation beds).
- Columbia Hospital for Women closed all services resulting in a decrease of 110 staffed obstetrical/gynecological beds and 183 total licensed obstetrical/gynecological beds.

These changes will impact referral patterns, consumer preferences, and payer networks. The full impact will not be experienced and recognized immediately.

### 2. *Adult Medical-Surgical Acute Beds*

As of July 2001, eight acute care hospitals in the District of Columbia offered adult medical-surgical ICU services with a total of 2,846 licensed beds (2,550 medical-surgical and 296 ICU beds) and 2,079 operating/staffed beds (1,826 medical-surgical and 253 ICU/CCU beds).

**Table 2** presents a current list of the District hospitals providing medical-surgical and ICU/CCU services and the number of operating beds at each facility as reported by the DCHA for first quarter 2001 (revised to reflect the closure of Columbia Hospital for Women and DC General Hospital as well as changes in capacity for George Washington University Hospital).

Children's National Medical Center provides medical-surgical services for pediatric patients. Accordingly, the medical-surgical data for Children's have been included in the section on pediatric medical surgical services, as shown in **Table 3**.

**Table 2. Adult Medical-Surgical and ICU-CCU  
Licensed and Operating Beds**

Acute Care Hospital	Adult Medical Surgical			ICU/CCU		
	License 9-02	Op Beds 12-02	Occ. 12-02	License 9-02	Op Beds 12-02	Occ. 12-02
George Washington Univ. Hospital	218	171	69.6%	48	48	60.4%
Georgetown University Hospital	339	198	79.3%	74	38	73.7%
Greater SE Community Hospital	332	194	54.6%	18	40	60.0%
Howard University Hospital	249	208	64.9%	77	30	86.7%
Providence Hospital	257	187	64.5%	17	12	91.7%
Sibley Memorial Hospital	270	171	68.4%	18	14	57.1%
Washington Hospital Center	653	578	81.7%	64	65	84.6%
TOTAL (current license)	2,386	1,767	74.1%	316	265	73.6%

Source: DCHA, Operating Beds and Occupancy by Service Report: 4th quarter 2002.

DCHA Report did not include Columbia Hospital for Women which independently reported 68 operating medical surgical beds and 4 ICU beds with a combined occupancy rate of 37 percent. This hospital is not included in this chart which depicts current availability of beds and occupancy.

DCHA calculates occupancy rate based on the number of operating beds. Average daily census is divided by number of operating beds.

Reflects new construction of GWUH as licensed complement of beds

Source: Number of Licensed beds: DC DOH

### 3. *Pediatric Acute Beds*

During the fourth quarter of 2002, seven acute care hospitals offered general pediatric and/or ICU services with a total of 236 staffed beds: 171 general pediatric beds, 18 pediatric ICU beds, and 147 neonatal ICU beds. In addition, the seven hospitals had a total of 271 bassinets. **Table 3** presents a list of the District hospitals providing general pediatric and/or ICU services and the number of staffed beds at each facility as reported by the DCHA for first quarter 2001.

**Table 3. Pediatric, Including Neonatal Intensive Care Unit Operating Beds**

Facility	Pediatric	ICU	NICU	Total
Children's National Medical Center	115	16	30	166
George Washington University Hospital <sup>2</sup>	0	0	18	18
Georgetown University Hospital	30	0	46	76
Greater Southeast Community Hospital	10	0	16	26
Howard University Hospital	16	0	9	25
Providence Hospital	0	0	9	9
Washington Hospital Center	0	0	20	20
Total	176	16	148	340

licensed and operating beds are the same.

Note – A total of 271 normal nursery bassinets are not included in count.

Source: District of Columbia Hospital Association and Columbia Hospital for Women, D.C. Department of Health State Center for Health Statistics, Vital Statistics Data Sheet.

## 4. *Obstetrics Beds*

A total of seven acute care hospitals in the District of Columbia designate beds for obstetrics or obstetrics and gynecology. **Table 4** shows each of the hospitals and includes the number of licensed and operating beds in addition to the occupancy rate of the service.

**Table 4. Obstetrics Licensed and Operating Beds**

Acute Care Hospital	Obstetrics		
	Licensed Beds	Operating Beds	Occupancy Rate
George Washington Univ. Hospital	37	39	26
Georgetown University Hospital	62	32	84
Greater SE Community Hospital	28	22	32
Howard University Hospital	53	10	35
Providence Hospital	48	32	44
Sibley Memorial Hospital	36	29	62
Washington Hospital Center	41	35	74
TOTAL	316	199	51

DOH, Licensure Division, including changes in capacity for George Washington University Hospital (increase of 5 beds), closure of Columbia Hospital for Women (reduction of 76 beds), and Certificate of Need awarded to Sibley Hospital (increase of 12 beds). DC General operated less than 10 beds.

Source: DCHA Bed Capacity and Occupancy Report, Second Quarter 2002.



DCHA calculates occupancy rate based on the number of reported operating beds. Average daily census is divided by number of operating beds.

### B. National and District of Columbia Trends

#### 1. *Trends – Local and National Comparison*

- a. *Length of Stay* – Nationally the average length of a hospital stay declined during the past decade while the number of hospital discharges stabilized after a decade of decline following a peak in the 1980s (Centers for Disease Control (CDC), 2001). This measure, which demonstrates a hospital's ability to treat patients in a reduced length of time, is continuing to decline, as forecasted by the American Hospital Association (AHA). The average length of stay for hospital inpatients reported by the AHA was 5.7 days in 2001, a 26 percent drop from 1990. The decrease in inpatient length of stay is partly driven by reimbursement policies utilization management and financial incentives inherent in various forms of managed care. Realistically, the decline in the length of stay rate can only go down so far.
- b. *Admission/Discharge Rate* – In contrast to the decreasing length of stay, the overall hospital admission rate in the United States remained relatively steady between 1995 and 1999, at 117.8 per 1,000 population and 118.7 per 1,000 population, respectively; however, there were significant changes in the rate by age cohorts. The admission rate among 14- to 44-year olds decreased by 17 percent and the rate among 45- to 64-year olds dropped by 14 percent. These decreases were offset by an 11 percent increase for those 65 and older, resulting in an overall rate that was fairly constant (CDC, 2001). Since 1996, occupancy rates have been rising but the number of beds has continued to fall, although at a slower pace. By 2000, total beds were only 82 percent of the 1991 level (AHA, *Cost of Caring*, 2003).
- c. *Overall Utilization* – In 1999 the District of Columbia hospital utilization rate was 12 percent higher than the national experience, at 133.3 admissions per 1,000 population<sup>1</sup>, and an average length of stay of 7.1 days was 25 percent above the national average, as shown in **Table 5**. This can be attributed somewhat to the unique aspects of the demographics of the population and the hospital environment of the District of Columbia, including the following:
  - The entire region of the District—a strictly urban population—is part of a larger metropolitan area. Adjacent population centers, as well as relatively few geographic and other barriers restricting access result in both in-migration and out-migration.
  - Many District hospitals are affiliated with large academic medical centers. A number of these are nationally recognized medical centers of excellence, treating patients from throughout the United States and internationally.

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<sup>1</sup> The admission rate has been adjusted to reflect the rate for D.C. residents only (50 percent of total admissions)

- For specialty services, patient origin data by age cohort suggest that District hospitals serve a particularly high regional market share; for example, the age group that has the highest percentage (46 percent compared with an average of 35 percent) of suburban service area residents is ages 0 to 14, demonstrating a reliance of the region on District hospitals for pediatrics and neonatal care.

*d. Consolidation* – Three hospitals within the District were merged recently with hospitals in Maryland to form MedStar Health, in an effort to improve their efficiency and cost-effectiveness. Similarly there have been other national hospital chains that have created consolidated operations, thereby eliminating business offices in their hospitals and reducing administrative costs. Hospitals on the other hand continue to shift away from forms of vertical integration, such as physician partnerships and the offering of insurance products.

**Table 5. Comparative Hospital Statistics for  
United States, the District of Columbia, and South Atlantic Census Division 2000**

	D.C.	MD	VA	U.S.
Admission rate per 1,000 population	226.0	*	*	117.6
Average length of stay in days	7.0	5.1	5.7	5.8
Average Annual Occupancy				
Beds per 1,000 population	5.8	2.11	2.37	2.9

Source: Census Division 3, South Atlantic, Metropolitan Centers, American Hospital Association

\* To be updated

*e. Ambulatory Services* – The trend toward ambulatory services, coupled with pressure from reductions in reimbursement and managed care, will continue to negatively influence hospital inpatient admissions. Newer and less invasive surgical techniques, according to the American Hospital Association, lower the threshold for intervention, allowing patients that are older and frailer to receive treatment in an outpatient setting. Nationally in 2000, hospital outpatient revenue rose to 35 percent of total hospital revenue, up from 13 percent in 1980, and 23 percent in 1990. The continued shift to ambulatory services is projected to result in a hospital patient population with a higher acuity rate than in the past.

*f. Access to Care* – In the District, a significant amount of inpatient hospital use is a consequence of among other things, historical lack of access by low-income and uninsured populations to comprehensive, continuous ambulatory care services—everything from primary care visits for preventive care to sophisticated diagnostic imaging and other specialized services provided on an outpatient basis. This results in both “preventable hospitalizations” for acute episodes of chronic conditions that are not being managed on an outpatient basis and use of emergency rooms for non-trauma cases. This phenomenon was a focus of the Mayor’s 1999 Commission on the Future of Health Care in the District of Columbia and of the reorganization of the District’s publicly funded Health Care Safety Net.

*g. Declining Bed Supply* – Another national trend is the declining number of hospital beds, relative to the population. Despite the projected increase in hospital admissions, there will continue to be fewer acute beds as a result of the substitution effects of advances in pharmacology, medical technology, and managed care utilization controls. Nationally, a reduction in the bed supply is predicted to be at least 130,000 beds by 2005<sup>1</sup>, which represents a decrease of over 16 percent between 1995 and 2005. In the District, a number of beds have already been taken out of service or closed. For example, in 2001, inpatient services at D.C. General Hospital were transferred to Greater Southeast Community Hospital, in effect de-licensing over 400 beds and the following year, the closing of Columbia Hospital of Women de-licensed 183 beds.

*h. Beds Not Staffed* - Over the years, hospitals have been operating fewer beds than licensed beds. This difference may be attributed to a mixture of factors and trends already described, including the following:

- Reduced demand for certain inpatient services;
- Need for space in which to expand ambulatory services and alternative treatment settings;
- Ability of some facilities to open and close units in response to seasonal fluctuations, and/or;
- Shortages of key clinical staff.

*i. Emergency Department Overcrowding* – Hospital emergency department treatment is a continuum, which commences with the patient's arrival; stabilization; treatment and either release or admission. The smooth flow of patients through this continuum is dependent upon sufficient quantities of medical personnel (physicians, but primarily nurses), equipment and bed space. Inadequate resources at any point in this continuum cause overcrowding. While the DCHA (DCHA, 2003) reports that the overall number of emergency department visits declined approximately four percent (4%) recently, the closure of DCGH's emergency department and the reduction of services at GSECH, have forced the remaining hospitals to each treat larger volumes of patients. Since the remaining hospitals do not have staff, equipment or space to rapidly treat these larger volumes of patients, the emergency departments become overcrowded – wait times for walk in patients are longer and stretcher patients who arrive by D.C. Fire and Emergency Medical Service ambulances line the hallways – attended by DCFEMS personnel until the hospital can accept medical supervision of the patients. At least two local hospitals are addressing emergency department overcrowding through aggressive recruitment of nurses and by opening more intensive care units for patient transition from the emergency department to a general medicine inpatient bed.

## **2. Trends – Adult Medical-Surgical Acute Hospital Services**

**Table 6** presents the historical utilization trend for adult medical-surgical services for District residents and non-District residents. Although adult medical-surgical discharges increased

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<sup>1</sup> Robert Wood Johnson Foundation Institute for the Future

between 1995 and 1999 from 51,370 to 61,018, the last three years of that period, from 1997 through 1999 were fairly constant due to changes in reimbursement incentives and pressures from managed care organizations. Between 1997 and 1999, total discharges increased only 4.2 percent, or 1.4 percent per year. This increase was offset by a decrease in the average length of stay resulting in a decrease in the patient days of 12.5 percent. District resident medical-surgical discharges increased 18.8 percent, while discharges from residents of the suburban area decreased 7.4 percent. Even though the average length of stay decreased significantly over the three-year period, to a low of 6.84 days in 1999, the District's medical-surgical average length of stay continues to be slightly higher than the national average (DCHA 1999).

The average occupancy rate for the first quarter of 2001 was only 54 percent of the licensed medical-surgical beds. Similarly, the occupancy rate of ICU-CCU units averaged 61 percent of the licensed ICU-CCU beds (77 percent of the operating medical-surgical beds and 71 percent of the operating ICU-CCU beds). It is expected that the overall occupancy rate of the hospitals that are part of the D.C. Health Care Alliance network will increase as a result of the closing of inpatient services at D.C. General Hospital.

**Table 6. Historical Medical-Surgical Utilization Trends**

	1997	1998	1999	2000	2001
D.C. Residents Only					
Discharges	62,123	62,184	61,018	*	*
Patient Days	441,887	426,425	417,398	*	*
Average Length of Stay	7.11	6.86	6.84	*	*
Average Daily Census	1,211	1,168	1,144	*	*
In-migration					
Discharges	58,349	69,704	59,805	*	*
Patient Days	354,529	357,457	350,341	*	*
Average Length of Stay	6.08	5.89	5.86	*	*
Average Daily Census	971	979	960	*	*
Total Utilization					
Discharges	120,472	122,888	120,823	*	*
Patient Days	796,416	783,882	767,739	*	*
Average Length Of Stay	6.61	6.38	6.35	*	*
Average Daily Census	2,182	2,148	2,103	*	*

Source: D.C. Hospital Association Hospital Discharge Database, 2002

Note: Data include ICU/CCU and exclude out-migration.

\* To be updated.

### 3. *Trends – Acute Pediatric Inpatient Services*

District residents represented approximately 46 percent of the pediatric discharges and 42 percent of the patient days in 1999 (see **Table 7**). This ratio of discharges between D.C. residents and residents from outside the city has dropped from around 50 percent in 1995. In other words, the proportion of pediatric patients admitted from outside of the District is increasing. This statistic is partly reflective of the regional draw of Children’s National Medical Center.

Between 1997 and 1999, total discharges for pediatric services remained relatively constant, increasing only 0.5 percent over the three-year period (see **Table 7**). Over the same period, average length of stay increased slightly resulting in an increase in inpatient days of 6.2 percent. District resident pediatric discharges decreased 3.2 percent, while discharges from residents of the suburban area increased 1.8 percent. Length of stay has remained relatively constant for both the District residents and patients from outside the city; however, the length of stay has been consistently higher for the residents from outside the city. This higher length of stay may be partially a function of the high acuity or discharge planning needs of the patients treated at Children’s National Medical Center.

The average occupancy rate, or percent staffed t licensed pediatric beds, for the first quarter 2001, shown in **Table 1**, was 78.7 percent of the general pediatric and ICU beds, including D.C. General Hospital. It is expected that the occupancy rate of the referral hospitals will increase as a result of closing inpatient services at D.C. General Hospital. George Washington University Hospital has added 12 general pediatric beds with completion of the new hospital.

<b>Table 7.</b>					
<b>Historical Pediatric Utilization Trends</b>					
	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>D.C. Residents Only</b>					
Discharges	15,475	14,910	14,971	*	*
Patient Days	69,728	67,848	66,598	*	*
Average Length of Stay	4.51	4.55	4.45	*	*
Average Daily Census	191	186	182	*	*
<b>In-migration</b>					
Discharges	17,454	17,818	17,778	*	*
Patient Days	82,298	90,634	93,379	*	*
Average Length of Stay	4.72	5.09	5.25	*	*
Average Daily Census	225	248	256	*	*
<b>Total Utilization</b>					
Discharges	32,929	32,728	32,749	*	*
Patient Days	152,026	158,482	159,977	*	*
Average Length of Stay	4.62	4.84	4.88	*	*
Average Daily Census	417	434	438	*	*
Source: D.C. Hospital Association Hospital Discharge Database, 1997-2001					
Note: Data include newborns and exclude out-migration.					

\* To be updated

Infant mortality has consistently been significantly higher in the District of Columbia than in the United States as a whole, and although this disparity has been decreasing, it is still distressingly large. According to the Centers for Disease Control (CDC), *Health, United States Chartbook 2002*, the U.S. infant mortality rate (2000) was 6.9 deaths per 1,000 live births, while during the same time frame, the District of Columbia rate was 13.5 deaths per 1,000 live births. Low birth weight and premature birth are significant contributors to infant mortality and may also indicate the need for neonatal intensive care services as well as prenatal and preventive services.

### 3. Trends – Obstetric Acute Inpatient Services

The volume of inpatient obstetrics services delivered by District hospitals declined somewhat through the late 1990s, as shown in **Table 8**.

**Table 8. Seven Year Utilization Trend: Obstetrics and Gynecology**

	1995	1996	1997	1998	1999	2000	2001
	Discharges	Discharges	Discharges	Discharges	Discharges	Discharges	Discharges
Gynecology	4,503	4,108	4,209	4,103	*	*	*
Obstetrics	19,003	17,681	17,648	17,791	*	*	*
Total	23,506	21,789	21,857	21,894	*	*	*

Source: DCHA Hospital Discharge Database, Discharges by Major Diagnostic Category

Note: 1999 data does not include Columbia Hospital for Women, due to the fact the hospital ceased to report data to DCHA during that year.

\*To be updated

Research suggests that pregnancy rates declined over the five-year period between 1996 and 2001, from 113.8 per 1,000 women to 61.6 per 1,000 women. Over the same period, the number of live births among District women dropped sharply from 8,377 in 1996 to 7,666 in 2001 (*Reported Pregnancies and Pregnancy Rates in the District of Columbia, 1996-2000*, Department of Health, D.C. State Center of Health Statistics, August 2002). Much of this trend is attributed to reductions in teen pregnancy.

Adequate prenatal care and primary health care for women may go a long way in addressing the District's high infant mortality rate. According to the Annie E. Casey Foundation, *The Right Start Online*, 2003, the percent of total births to mothers in the District with late or no prenatal care in 2000 was 7.6 percent compared to other urban cities, such as Baltimore, Chicago and Detroit that experienced percentages of 6.4, 6.4 and 9.1 respectively. Of note is that the same economic and cultural barriers exist in the District of Columbia as they are observed in most urban areas. Primary care initiatives, which are a part of recent reallocation of hospital

beds among hospitals participating in the D.C. Health Care Alliance, hold some promise for the removal of these barriers. In addition, expansion of Medicaid HMO coverage for the District's Healthy Families Program will help to improve both prenatal and preventive health care services, both vital to further reductions in high-risk pregnancies and perhaps in the pregnancy rate itself.

## C. Service Area and Population

### 1. *Service Area Definition*

The service area as generally defined by DCHA includes the District of Columbia and suburban jurisdictions in Maryland (Prince George's and Montgomery Counties) and Virginia (Arlington and Fairfax Counties, and the cities of Alexandria, Fairfax and Falls Church). See **Tables 9 and 10**.

The term service area is usually applied to one facility or service in order to forecast the need and demand for its services incorporating population-based demographic indicators or utilization rates. In that sense, each facility has a unique service area determined by its own patterns of referral, consumer preference, payor relationships, and other factors.

In this chapter, the service area is designed to represent the collective service areas for District hospitals. As a result, the service area is simplified, defined by major jurisdiction rather than by zip code or other small units.

Two methods of defining service area are traditionally employed in assessing community need for hospital services. One is utilization based and considers patient origin with the goal of identifying the area from which most patients who are admitted to the hospital reside. Another is market share driven and attempts to identify the regions within which a major portion of the residents relies on a hospital's resources. Ideally both measures are used. Because of the complexities involved in calculating market share across multiple states, the method in this chapter relies on the utilization approach to service area designation.

### 2. *Patient Origin*

**According to DCHA and Table 9, as reported in the *Hospital Discharge Database 2001*, over 44 percent of hospital patients come from Maryland, Virginia, or other locations.**

Using the DCHA Hospital Discharge database and sorting hospital patient origin by zip code confirms these findings, as shown in **Table 9**.

**Table 9. Patient Origin by State 1995-1999, DCHA Service Area**

Jurisdiction	Total	Percent of Total
District of Columbia	372,955	55.75
Maryland: Prince George's County and Montgomery County	193,943	28.99

District of Columbia State Health Systems Plan 2003 to 2008



## Acute Health Care Services – Preliminary Draft

Virginia: Arlington and Fairfax counties, Alexandria, Falls Church, and Fairfax	40,697	6.08
Other	61,373	9.18
TOTAL	668,968	100
Source: DCHA Hospital Discharges 1995-1999, sorted by zip code		

From this analysis of utilization and patient origin for the five-year period, several observations can be made.

- These data confirm that almost 56 percent of District hospital patients come from the District of Columbia.
- In percentage terms, the number of patients from Maryland far exceeds the number of patients who reside in Virginia.
- The 44 percent patient origin from areas outside of the District is a large percentage compared to those typically observed service areas for health planning purposes. This high percentage may result from borders of county jurisdictions that are not particularly related to hospital referral and admission patterns.

For acute care and certain other health care services, definition of this regional service area is necessary to observe and analyze the need that is met by hospitals operating in the District of Columbia for acute inpatient services. A number of factors must be addressed when such a multi-jurisdictional approach to planning is engaged:

- The Metropolitan Washington Council of Governments (MWCOC) does not issue updated jurisdictional projections in the same year as the U.S. Census information is released. As a result, the current published forecasts reported in its *Growth Trends to 2025*, published in the summer of 2000, remain to be updated to reflect adjustments in U.S. Census 2000 at the time of this plan development. Adjustments are calculated and adjusted for year 2007 estimates.
- Utilization, hospital admissions, discharges and patient days, for example, are collected in three different states through a myriad of agencies, increasing the difficulty of observing trends and also restricting the use of market share analyses to more closely define the hospital service area.

Consequently, the estimates presented here for population and market share employ carefully blended data sources in order to achieve the most responsible projections available.

### 3. *Population Projection*



By combining the MWCOG forecasted population increases with U.S. Census 2000 populations, the MWCOG projections can be adjusted for the differences between actual 2000 population and MWCOG projections for 2000. This is especially important for the District of Columbia where not only was a decade-long trend of a population decrease reversed for the period 1998 through 2000, but there was a significant correction of a previous undercounting (according to D.C. Planning staff and Council of Governments reports). **Table 10** shows the current and projected populations for jurisdictions within the service area.

**Table 10. Current and Projected Populations for the District of Columbia And Surrounding Jurisdictions**

Geographic Area	U.S. Census 2000	Metro Washington Council of Governments		
		Proj. 2005	Proj. 2010	Avg. Projection 2007
DISTRICT OF COLUMBIA	572,059	523,500	554,700	593,059
MARYLAND				
Montgomery County	873,341	910,000	945,000	945,841
Prince George's County	801,515	784,600	824,500	821,465
MARYLAND AREA	1,674,856	1,694,600	1,769,500	1,767,306
VIRGINIA				
Arlington County	189,453	198,000	201,000	196,953
Fairfax County	969,749	1,045,400	1,112,900	1,080,699
Alexandria City	128,283	131,300	135,300	134,483
Fairfax City	21,498	22,100	22,700	22,198
Falls Church City	10,377	10,600	10,700	10,627
VIRGINIA AREA	1,319,360	1,407,400	1,482,600	1,444,960
SERVICE AREA	3,122,499	3,233,300	3,387,400	3,346,749

1. Jurisdictions are those defined by the District of Columbia Hospital Association, *Financial Indicators FY 2002*
2. U.S. Census figures are from the website.
3. Metropolitan Washington Council of Governments projections for 2005 and 2010 were obtained from *Growth Trends to 2025*, MWCOG Summer 2000.
4. Calculation of 2007 projection is an average of 2005 and 2010 projections based on the actual U.S. Census count.

The chart in **Table 10** can be refined to reflect smaller areas that are thought to conform more closely to the criteria of both utilization and market share. Those areas would be comprised of smaller units such as zip codes or the traffic zone methodology developed and maintained at MWCOG. Such an approach will require more detailed information about the utilization of

suburban Maryland and Virginia hospitals in order to calculate market share. While such data have not been accumulated and analyzed for public health planning in the District, proponents of services and providers are encouraged to develop sources of data that permit estimation of market share in the formulation of specific provider plans.

The region surrounding the District of Columbia has a number of tertiary care centers. INOVA - a regional integrated tertiary care center is located in Northern Virginia and Prince George's Community Hospital in Prince George's County. Physicians who practice in the surrounding Maryland and Virginia suburbs frequently have admitting privileges at District hospitals and rely on the District's medical centers for specialized care. This, to some degree, sustains the regional draw of District hospitals.

#### **4. *Migration***

Migration is a factor in forecasting the demand for services for a specific service area when residents of other areas come into the service area for hospitalization (in-migration) or leave the area in which they reside for hospitalization (out-migration). For this service area as a whole, in-migration is observed in **Table 9** which reports that 9.18 percent of discharges were individuals who lived outside the region, as defined by DCHA, which includes two counties in Maryland and two counties in Virginia as well as Alexandria, Falls Church and Fairfax.

Migration patterns that are internal to the service area, particularly those between the District and the other jurisdictions are important for planning purposes. Demand for services within any of the jurisdictions changes as migration within the region shifts. Consideration of in- and out-migration for the District of Columbia for purposes of projecting acute bed need is discussed in Section III of this chapter where a model for developing those projections is presented.

### **D. Issues Affecting Acute Inpatient Services in the District of Columbia**

#### ***1. Access to Inpatient Specialty Services - D.C. Health Services Reform Initiative***

The District of Columbia health services reform initiative involved reallocating resources. This reform included reallocating resources used to operate inpatient beds at D.C. General Hospital to purchase needed inpatient services from the several hospitals throughout the District forming a network and using funds previously needed to address operating deficits at D.C. General Hospital.

D.C. Health Care Alliance patients in need of inpatient hospitalization are referred to hospitals within the Alliance network. The network includes the following hospitals: (1) Greater Southeast Community Hospital, (2) Children's National Medical Center, (3) Howard University Hospital, (4) Providence Hospital, (5) George Washington University Medical Center and (6) Hadley Memorial Hospital.

Health services reform goals included the following:

- Developing a comprehensive, integrated system;

- Emphasizing primary and preventive care;
- Developing a database of patient population and utilization patterns; and,
- Developing an aggressive quality management program for increased accountability.

Although patients do not receive an Alliance specialty card if their primary care provider is one of the NPCC clinics, inpatient and specialty care is accessed by a referral system, with a physician signature required for access.

### **2. *Shortage of Health Care Professionals***

Hospitals are experiencing both immediate and long-term shortages of qualified health care workers. The most notable shortage is among registered nurses who provide bedside care in the inpatient setting. The lack of pharmacists, respiratory therapists, and medical technologists is also of concern as reported by local professional organizations.

Current levels of reimbursement for hospital services, both by commercial payors and from the Centers for Medicare and Medicaid Services (CMS) (formerly the Health Care Financing Administration) for Medicare and the District and surrounding states for Medicaid, challenge the ability of hospitals to pay competitive wages. This has become especially acute with respect to nursing, which is still a predominantly female profession in an era when many more career opportunities, some more lucrative, are available to women. This combination of downward pressure exerted by payors on reimbursement plus the shortage of professionals challenges the continuing fiscal viability of many inpatient providers and.

The District of Columbia Consortium in Nursing Education and Practice (DCCNP) conducted a survey in November 2000 to identify nurse vacancies and level of satisfaction with employment. The survey findings included the following:

- 70 percent of all nursing vacancies in the District are within the hospital setting
- Direct nursing care comprises on average 65 percent of the total staff in District hospitals
- The overall District hospital's rate of unfilled nursing positions is 13.9 percent.

A study sponsored by the Health Resource Services Administration, Bureau of Health Professions in 2001 and prepared by the Harvard School of Public Health, demonstrated that there is a strong and consistent relationship between nursing staffing variables and important patient outcomes that determine quality of care some of which include infections, bleeding and length of stay. It was found that higher staffing levels of registered nurses were associated with between a three and 12 percent reduction in the rates of adverse outcomes. A follow-up analysis in 2002 confirmed these findings.

The hospital nursing shortage is one of among many issues being considered by the Mayor's Health Policy Council. The Mayor's Health Policy Council serves as the focal point for the coordination and implementation of the Mayor's Health Transformation Initiatives and to assist the Mayor in analyzing health policy options as to their operational and financial impact on the

residents of the District. The Council has identified the following issues concerning the nursing shortage that need to be addressed:

- The decline in enrollments in schools of nursing. Enrollment has been declining 5 percent per year since 1995, while at the same time the need for registered nurses is projected to grow by 23 percent by 2008 (American Nurses Association). Too few young people are choosing careers in nursing.
- The increasing age of the nursing workforce. The average age of the total RN population, according to the U.S. Department of Health and Human Services, (HHS), Health Resources and Services Administration's (HRSA), Bureau of Health Professions (BHP), (including those who are retired and not employed in nursing) was estimated as 45.2 years in March 2000. Only 9.1 percent of the nursing population was under 30 years of age.
- The cost of recruitment and retention of registered nurses. It is very costly for area health care facilities operating on slim margins, where incentives may include increasing recruitment and retention bonus pay, shift differentials, flexible schedules, and the like.

### 3. *Uncompensated Care*

Competition and cost issues in today's health care marketplace are posing major challenges to continued access to care for America's poor and uninsured. The amount of uncompensated care provided by District hospitals has been steadily declining over the last five years (1997 – 2001), with a very slight increase in 2001. It should be noted that uncompensated care constitutes a mixture of charity care and bad debt. See **Table 11** for a description of the uncompensated care trends by facility from 1997 through 2001.

**Table 11. Uncompensated Care – Percentage of Individual Hospital Total Care**

	1998	1999	2000	2001
	Percent of Total Care	Percent of Total Care	Percent of Total Care	Percent of Total Care
Children's National Medical Center	14.24%	13.32%	15.16%	13.27%
Columbia Hospital for Women Medical Center	NA	2.80%	NA	NA
District of Columbia General Hospital	43.96%	55.30%	NA	NA
George Washington University Hospital	5.08%	5.48%	6.36%	5.37%
Georgetown University Hospital	2.64%	2.81%	3.95%	3.06%
Greater Southeast Community Hospital	10.10%	9.20%	5.93%	6.14%
Hadley Memorial Hospital	NA	2.99%	2.09%	0.33%
Howard University Hospital	15.84%	16.09%	12.10%	16.78%
National Rehabilitation Hospital	2.97%	2.97%	3.12%	1.89%
Providence Hospital	5.26%	6.55%	5.73%	5.77%
Sibley Memorial Hospital	3.75%	4.65%	2.88%	3.18%
Washington Hospital Center	5.63%	5.69%	5.99%	6.34%

District Total | 8.60% 9.82% 6.75% 6.90%

*Note: Columbia Hospital for Women and Hadley Memorial Hospital did not report for 2000 or 2001 and psychiatric and federal hospitals are excluded. D.C. General Hospital data are included for comparison purposes.*

Source: 2001 D.C. Hospital Association Financial Indicators

In a 2000 report by the Institute of Medicine, it was stated that “the number of uninsured in the U.S. is growing with disproportionate impact on core safety net providers while some of the direct and indirect subsidies that help finance uncompensated care are eroding.” Specific issues regarding access to care highlighted by the Institute of Medicine include the following:

- Mounting pressures on the system – rising numbers of uninsured patients, decline in Medicaid eligibility due to welfare reform, increasing health care access barriers for minority and immigrant populations
- Specific consequences for providers and their patients from the competitive, managed care environment – specifically, the evolution and impact of Medicaid managed care
- The needs of special populations – children with special needs, people with serious mental illness, people with HIV/AIDS, and the homeless.

Over one quarter of the District’s population receive health coverage through the Medicaid program, and another 17 to 18 percent of the population have no health insurance. These populations have difficulty accessing health care services, particularly primary care, which results in a reliance on hospitals and emergency rooms for basic health care.

#### **4. *Systematic Analysis of Data***

##### *a. District*

Attempts to plan for or evaluate hospital services in the District and the region, or to create public policy regarding acute inpatient care and facilities, are often hampered by the lack of a systematic in-depth analysis of the hospital discharge database and other medical databases. By utilizing additional information that comes from regional agencies in neighboring Maryland and Virginia, which maintain similar data, the analyses may be enhanced to give a clearer picture regarding in-migration.

##### *b. National*

Of the 50 states, 42 have comprehensive hospital discharge databases, maintained either by a state agency or a private, often nonprofit, organization (those without are mostly sparsely populated states like Montana, Idaho, and North Dakota). In addition, over half the states now maintain comprehensive databases on ambulatory surgery, and 18 states currently have databases on emergency room care. The Department of Health, State Health Planning and Development Agency (SHPDA), and other District government agencies concerned with the health and well being of District residents are working together to expand the current database reporting elements to include utilization data from hospital outpatient services and physician practices.

#### **5. *Shifts in Utilization of Acute Care Services***

Delivery of acute care services in the District of Columbia is in a state of change. Approximately 70 percent of all surgical procedures are now performed in an ambulatory setting. In the future, a reduction in the rate of decline of the length of stay with a potential increase in patient days is expected to occur. The historical length of stay in the District is higher than the national average due to a number of factors, including the following:

- A high proportion of District hospitals and the surrounding area facilities are tertiary care facilities and/or academic medical centers treating more complex cases, often referred from outside the District. These specialized services traditionally may require longer stays.
- Upon presentation, more patients have multiple co-morbidities, tend to be sicker and may not have support systems in place or at home to permit early discharge, thus requiring longer lengths of stay. In assessing the effect of this factor on future hospital utilization in the District, it is assumed that in the short run a higher patient acuity level will continue to be a factor, keeping average length of stay up. In the long run however it is hoped that, by providing better access to outpatient services, the Alliance will decrease the number of preventable hospitalizations for ambulatory care-sensitive diagnoses.

### **6. *Regional Competition***

Maryland and Virginia have major tertiary care facilities that serve the entire region, including patients that are District residents. Over the past ten years they have been successful in drawing an increasing portion of the market share that District hospitals once commanded.

## **IV. BED NEED PROJECTIONS**

Need is addressed for all adult general acute hospital services and separately for pediatrics and obstetrics. The need for these services is specifically estimated as both a planning forecast and a standard methodology for providers when changes in service are considered and proposed.

### **A. Acute Care Hospital Services**

The process used to estimate a population's need for acute care services in a way that identifies the type of services, takes into account the demographic changes, and determinates of need can be complex. An ideal methodology is based upon consistency, comprehensiveness, and compatibility of historical data with the range of policy issues and planning assessments that are envisioned. This chapter presents the need for acute care services in a basic and concise format. Furthermore, implications for future refinement of data collection and design of reporting and analysis are addressed.

The first step in the process entails examining current utilization patterns. The subsequent steps estimate changes in hospital admissions, lengths of stays, the current bed inventory and finally determine whether there is an excess or shortage of beds by service based on an acceptable occupancy rate. This approach has some limitations. Changes in hospitals have recently taken place, and these changes may impact the relationship of historical utilization to future trends. Prevalence and incidence of disease are not taken into account. In addition, the composition of the service area (includes three neighboring states and widely varying jurisdictions) further challenges forecasting.

Even with these limitations, the estimates described in the tables below, along with the goals and objectives for enhancement of data collection and reporting, present sound planning principles that may guide policymakers and providers in analysis and decision making.

### **B. Adult Medical-Surgical Services**

The projection of adult medical-surgical services begins with the development of several specific indices for estimating changes that affect need and demand for hospital services. The following basic questions are asked:

- What is the **base utilization** of acute hospital services from which changes will be forecast?
- How do the **population growth** rates of jurisdictions within the service area affect the future demand for service?
- How will changes in **utilization rates** be affected by demographic characteristics of the service area population?
- What other factors may influence demand, such as access to care and managed care, and how can they be incorporated into a quantitative forecasting model?

These questions apply to each acute service for which forecasts are presented. The assumptions developed in the following tables may apply to each area of service (ICU-CCU, Pediatrics, and Obstetrics) differently, as will be noted.

#### *a. Base Utilization*

Based upon a review of the five-year trend of District of Columbia discharges, the 1999 estimates presented previously are applied to the base year, 2000. Although inpatient admissions decreased 7.59 percent from 1995 to 1999 (DCHA, Utilization Indicators, 1999), the most recent DCHA quarterly report (released in August 2001, including second quarter 2001 year-to-date figures) states increasing numbers of admissions over the previous reporting period. Therefore, this methodology assumes that the declining trend DCHA reported for 1999 has at least leveled off. In 1999, according to **Table 6**, medical-surgical discharges totaled 120,823, a number that had been almost constant since 1997. The discharges reported in **Table 6** include ICU-CCU; therefore, this bed-need forecast includes both adult medical-surgical and ICU-CCU beds.

#### *b. Population Growth Rates – 2000 to 2007*

Population for jurisdictions within the service area is growing at different rates. The demand for a hospital's services will reflect the mix of those changes, as represented by its patient origin. Since patient origin is specific to each acute care hospital, a generalized approach is demonstrated in this forecast. This approach yields two rates of population change: one for the District of Columbia and one for suburban service areas. As further data are developed, this

approach can be refined. The rates of population change (2000 – 2007) noted in Table 12 are calculated using data from Table 10.

**Table 12. Projected Population Growth  
Increase from 2001 – 2007**

	<b>U.S. Census 2000</b>	<b>Projected Population 2007</b>	<b>Percent Growth Projected (%)</b>
District of Columbia	572,059	593,059	3.67
Maryland	1,674,856	1,767,306	5.52
Virginia	1,319,360	1,444,960	9.52
Total, Maryland and Virginia	2,994,216	3,212,266	7.28

1. U.S. Census, from website
2. Projected Population 2007, **Table 10**

### **3. Utilization Rates**

As noted at the outset of this forecast, a market-based approach that begins with prevalence (rates of illness and conditions requiring hospitalization), need, and demand from a community perspective is preferred. Instead, this methodology incorporates observations about how existing services are used. In this utilization-based model, such demographic need determinants can be incorporated in two ways, described below under sections titled: ***Change in Hospital Admission Rates*** and ***Length of Stay***.

### **4. Change in Hospital Admission Rates**

As a population changes, the need for hospital services of all types changes. Fundamentally, these changes result from a wide range of characteristics that affect the prevalence of diseases, disorders, trauma, and any other condition that requires hospitalization. A number of demographic resources have been developed to index hospital use as much as possible to a simple set of easily measurable demographic characteristics. To be able to forecast hospital admissions, the predicted change in admission rates used by such a resource can be incorporated.

Claritas, Inc.<sup>2</sup>, a marketing research company, of the State of Illinois, is one such resource. The firm uses a national database from medical records to relate hospital cases to age, sex, race, and income. It is in fact possible to use Claritas' forecasts to estimate total need within a population—a process that could be applied into a market-based approach with the appropriate data. For the facility-based approach used here, the Claritas' changes for the District's service area, predicted from 2002 – 2007 in its model, are simply applied to the base utilization.

**Table 13** shows how the rates of change were extracted from Claritas' projections that do incorporate age, race, sex, and income factors. It shows rates of change that are different for the District of Columbia (a 3 percent increase in the rate at which admissions occur) and for the

<sup>2</sup> Claritas, Inc: [www.claritas.com](http://www.claritas.com)



other suburban areas (a total of 7 percent). These are remarkably similar to the population changes shown in the preceding step, but they are different factors and both are included in the forecast model.

**Table 13. Calculation of Changes in Hospital Admission Rates**

Estimated Utilization Statistics	District of Columbia		All Suburban Areas	
	2001 est.	2006 est.	2001 est.	2006 est.
Average length of stay	5.69	5.74	5.18	5.32
Total cases, all MDC's	92,770	91,887	522,024	573, 527
Cases per 1,000 population	162.12	164.07	144.3	150
Less: Non-medical-surgical MDC's				
Total Rate per 1,000, excluded MDC's	43.17	41.54	43.68	42.05
Net rate for estimation of total utilization	118.95	122.53	100.62	107.95
Rate of change in admission rate, 01 – 06		3%		7%
1. All data are from Health Survey reports published from web-posted database by Claritas, Inc. Standard report 2001 – 2006. 2. Health survey reports were generated for the District of Columbia and for the total suburban service area, comprising the counties and cities in Maryland and Virginia listed by DCHA as the Hospital Service Area 3. Non-medical-surgical Major Diagnostic Categories (MDCs) that are excluded are MDC 13, Female Reproductive System; MDC 14, Pregnancy/Childbirth; MDC 15, Newborn and Neonatal; MDC 19, Mental Health; and MDC 20, Substance Abuse. 4. The survey 2001-2006 is a standard survey; rates are applied to 2007 population projection.				

### 5. Length of Stay

Demographic factors also appear to affect length of stay as shown in the **Table 13**. Length of stay for District residents is projected to be longer than the length of stay of residents within suburban areas. Each is the product of the distribution of age, sex, race, and income as factored into the Claritas' forecasting model. The projection methodology used is based upon the lengths of stay forecasted in **Table 13** above. A "weighted average" (by patient origin) of these two lengths of stay is used as the estimate of future length of stay. See **Table 14** below for the calculation.

**Table 14. Calculation of Average Length of Stay 2007**

	Patient Origin (%)	Average Length of Stay*	Factor
District of Columbia	55.75	5.74	3.20
Maryland	28.99	5.32	1.54
Virginia	6.08	5.32	0.32

All other areas	9.18	5.32	0.49
	Weighted Average Length of Stay		5.55

\*Derived from Claritas *Health Survey Reports*, Projected 2007.

Projecting hospital demand in this fashion essentially applies a rate of change to each jurisdiction. It has the advantage of relating total demand to different rates of increase that reflect the varying growth rates among jurisdictions. When sufficient data become available to conduct a more refined analysis, the approach can be especially useful to examine differences in utilization rates at the county and city level, and perhaps at the small area level as well. It is a model that is fluid enough to reflect how population changes in particular impact demand.

There are limitations to this approach that may be addressed in the context of an individual proposal:

- Estimates of prevalence or incidence of conditions requiring hospitalization are not taken into account;
- There is no factoring in of market share differences because total utilization is not easily obtained from a multi-jurisdictional service area spanning three states. If this can be simulated, then differences in population growth can also be adjusted by the differences among communities based upon each jurisdiction's reliance on District hospitals;
- Physician referral patterns are not taken into account;
- Managed care policies and hospital contractual arrangements are not taken into account; and;
- The approach uses aggregate, county and city data, which may exaggerate the population of the hospital service area while minimizing the market share, and impact of District facilities on regional referral patterns.

These limitations can be overcome, but only through a regional data collection process for inpatient services with comprehensive reporting of patient origin.

In addition to these limitations, several assumptions are implied in this approach:

- The hospital service area defined in this chapter includes the area over which adjustment factors are developed for the base utilization.
- The patient origin of the District, that is the proportion of District hospital patients who reside within District areas, remains constant. Additional market share data are necessary to build a model that can describe those factors.
- In-migration, from outside the identified service area (including suburban Maryland and Virginia), is not considered differently from all other out-of-District patients for the purpose of estimating future need. The net effect of in- and out-migration between the

District of Columbia and the remainder of the service area is addressed following the summary of the bed need projection methodology outlined below.

- This process has relied upon self-reported statistics of discharge as well as admission data supplied by the District's hospitals to the DCHA for historical trend data. It has not been determined how the blending of this data will impact the findings. Unless specific aberrations are noted, it is assumed that these data are accurate and consistent.

### 6. *Summary of Methodology by Steps*

The steps in the projection of bed need, using these core assumptions are listed below.

1. **Base utilization:** Determine the base utilization, or volume of admissions from which projections will be made.
2. **Population adjustment:** Apply population growth rates (**Table 12**) to each of the sectors for which patient origin is designated.
5. **Admission rate change adjustment:** Adjust the admissions projected for 2007 on the basis of total population (step 2) by the rate of change (**Table 13**) expected in utilization rate (admissions) for the respective populations.
6. **Projected admissions:** Total admissions from the District of Columbia and other areas.
7. **Patient Days:** Apply the weighted-average length of stay (**Table 14**) to calculate total patient days.
8. **Average Daily Census:** Divide patient days by 365 to derive average daily census.
9. **Bed Need:** Divide the average daily census from step 6 to yield the number of beds needed to sustain that occupancy level. This will become the projection of bed need that may be compared to the existing number of licensed beds. An optimal occupancy rate for medical-surgical beds, including ICU-CCU, is 85 percent.
10. **Existing Beds:** See **Table 3** for total licensed medical-surgical and ICU-CCU beds.
11. **Surplus or Unmet Need:** Subtract the existing licensed beds from the bed need to define the surplus or unmet need depending on the outcome. Note that this is figured on licensed, not operating beds.

**Table 15** presents these steps in sequence.

**Table 15. Adult Medical-Surgical Bed Need Calculation**

<b>Population in Service Area, 2007</b>	
District of Columbia	593,059
Suburban Areas, Maryland and Virginia	3,212,266

1. Estimated Admissions, 2001	
Medical Surgical Admissions (see assumptions)	
District of Columbia	62,000
All others	59,000
2. Adjustment for increase in population - 2007 (Table 12)	
District of Columbia	64,275
All others	63,295
3. Adjustment for changes in admission rates (Table 13)	
District of Columbia	66,204
Suburban Service Area	67,726
4. Total admissions – 2007	133,930
Weighted average length of stay (Table 14)	5.54
5. Total patient days (yearly)	741,970
Average stay applied to total admissions – 2007	
6. Projected Average Daily Census	2,033
7. Bed Need (at 85 percent occupancy)	2,392
Licensed Beds (Table 2)	
Medical-Surgical Beds	2,386
Critical Care Beds	316
8. Total Currently Licensed Beds (Medical-Surgical and ICU-CCU)	2,702
9. Current Beds in Excess of Need Estimate – 2007	310

The projected average daily census shown in step 6 of this model—2,033 in the year 2007—compares with a total number of operating beds of 1693 (medical-surgical and 233 ICU-CCU, **Table 2**) beds reported as operating in August 2001. Therefore, in order to sustain optimal occupancy rate, beds now licensed but not operating will need to be placed in service.

**The surplus of licensed beds exceeds the number that might be required to reopen under this projection. No additional licensed adult medical-surgical beds are needed.**

## 7. *Migration within the Service Area*

The patient origin for District of Columbia and other area hospital admissions will further impact the demand for services in the District to the extent that the in-migration patterns affecting those service areas change, motivating residents to go into and out of the District for hospital admissions.

The bed projection method shown above does result in changes to District acute hospital patient origin. The percentage of District inpatients that are residents is projected to drop from 55 to 49.5 percent. (**Table 15**: line 2 divided by line 4) This is without making quantitative adjustments for projected changes in migration patterns into the District from Maryland and Virginia. Market shares for the jurisdictions within the service area are, in a sense, held constant. Therefore, this reduction is exclusively the result of projected population changes adjusted for demographic indicators among the jurisdictions. It does not reflect any assumptions about

changes in market share that may result from a change in consumer preferences, referral patterns, or payor networks.

**Table 6** shows a declining number of discharges from District hospitals by patients from Maryland and Virginia jurisdictions. Other data collected by agencies in Maryland and Virginia can be used to examine more closely migration out of the District to those counties and cities.

**Based on District data alone, it appears that the net effect of migration patterns, over the period studied has been an overall decline in market share of District hospitals.**

Such trends are only one among several factors that would go into a projection of future in- and out-migration. Other potential factors not considered in this methodology include payor networks, provider networks, marketing, as well as other determinants of consumer preferences.

### C. Pediatric Services

The need for pediatric services is estimated in much the same way as the need for adult-medical surgical and ICU-CCU beds. There are several important differences in the way that the steps are employed due to a lack of similar data. Data limitations include the following:

- U.S. Census 2000 does not yet show age cohorts at the jurisdictional level at this time. Currently, age-specific population projections must be estimated from census data.
- The MWCOG does not publish projections for age cohorts. Consequently any information is derived from a source of data such as Claritas, which remains dependent on U.S. Census 1990 data for sub-area age projection. Despite this, the Claritas model does use demographic modeling techniques not otherwise available to forecast changes by age cohort.
- A defined age limit for pediatrics units is a matter of policy and individual consideration, which makes the age group used for projection difficult to determine. The trend analysis that is used here to base forecasted changes in population upon, is the total Claritas age cohorts for ages 0 – 14. This is used only to forecast changes in population. Since actual utilization is the base from which projections are made, no differences are implied between this age cohort and the actual operating policies of pediatric units.
- Age-specific utilization projections such as those derived from Claritas for adults are not available. Therefore, no similar age adjustment (see step 2 for adult model) is included for pediatrics. Also, the assumed length of stay is equal to the length of stay reported by DCHA for the last full reporting period, 2001, instead of a weighted average length of stay by patient origin distribution.

Other than these modifications, the steps are followed in exactly the same way as for adult medical-surgical forecasts. **Table 16** displays bed need for pediatric acute care.

**Table 16. Pediatric Acute Care (including nursery) Bed Need**

District of Columbia State Health Systems Plan 2003 to 2008

1. Estimated Admissions, 2001	
District of Columbia	14,971
All others	17,778
2. Adjustment for change in population 2007 (Table 12)	
Source: Claritas percent change in 0 – 14 ages	
District of Columbia (.09 % decline)	13,549
All others (.01% increase)	18,020
3. Total admissions – 2007 (est.)	31,569
Current estimated length of stay (days)	4.88
4. Total patient days (yearly)	154,054
Average stay applied to total admissions - 2007	
Projected Average Daily Census	422
5. Beds Required to operate at 75 percent occupancy	563
6. Licensed Beds (Table 3)	
Pediatric Units	191
Pediatric Critical Care Unit	16
Neonatal Intensive Care Unit	102
Nursery Bassinets	271
7. Total Licensed Beds	580
8. Current Beds in Excess of Need Estimate – 2007	83

The need for services for pediatric patients, is projected based upon historical use rates, population projections, and estimated in-migration statistics for the period 2002 – 2007. The forecast need is for 563 beds for the year 2007, based on an assumption of 31,569 admissions and an average length of stay of 4.88 days.

**The total admissions are projected to decrease almost 3 percent over the five-year period, while the average length of stay will remain constant; available capacity of 312 beds and 271 bassinets appears adequate to meet the projected utilization.**

### D. Obstetrics Services

The need for obstetrics services and the incidence of discharges otherwise into beds designated for Obstetrics and Gynecology appears to be steadily declining as a result of reduced pregnancy rates, aging populations, ambulatory and outpatient technology, and specialty alternatives for women who are admitted for inpatient care. Consequently the estimation of the need for obstetrics services is related entirely to the observed utilization of these services.

For purposes of this projection, the most recently available provider-generated, community-wide information is used. In view of steadily declining utilization and the recent closure of Columbia Hospital for Women a major provider of obstetrical services, the 1998 figure is used as a base utilization for the Obstetrics need model shown in **Table 17**.

The closure of Columbia Hospital for Women, along with the additions to beds in service at George Washington University Hospital and Sibley Hospital are reflected in this projection of need. The supply of beds has been reduced to show only those obstetrics beds licensed at the time of publication of this plan.

<b>Table 17. Obstetrics Bed Need</b>	
1. Estimated Admissions, 2001 (Obstetrics and Gynecology Admissions (Table 9, 1998))	21,262
2. Current estimated length of stay (days) (Claritas projections for D.C. and Virginia, blended)	3
3. Total inpatient days	63,786
4. Projected Average Daily Census	175
5. Beds Required to operate at 75 percent occupancy	233
6. Licensed Beds (Table 4)	316
7. Current Beds in Excess of Need Estimate - 2007	83

**There is also a surplus of obstetrics beds when the number of beds is reduced to reflect only those in operation by facilities other than Columbia Hospital for Women (Table 4). The number of operating beds less is 218 compared to the projection of beds required of 175, resulting in a projected surplus of 43 beds. It is clear that forecasted demand is less than the number of currently operating beds that have historically been available at District hospitals. This conclusion is further supported by the 51 percent occupancy rate reported by those seven hospitals.**

### **E. Summary of Acute Care Bed Need**

Current beds in excess of need in 2007 are:

- Adult Medical/Surgical - 310;
- Pediatric – 83; and,
- Obstetrics – 83.

## **V. CRITERIA AND STANDARDS**

### **A. Availability**

The average annual occupancy shall be as follows:

Medical-surgical	85 percent
Pediatrics	75 percent

These target occupancy figures attempt to balance two public policy goals:

- Cost Containment/Resource Allocation – not having excess inpatient capacity sitting idle when the resources supporting those unused beds could be better applied toward meeting other critical health needs of the population

- Access to Care – ensuring that a bed will be available when needed, especially for emergencies and unscheduled admissions.

Occupancy numbers should be based on licensed, not staffed, beds, assuming that the average bed complement in Pediatric and Obstetrical units will be smaller than in Medical-Surgical units (with the obvious exception of Children’s National Medical Center). Target occupancy rates for Pediatrics and Obstetrics is slightly lower to accommodate the need for bed availability in units with smaller bed complements; in other words, the probability of having a bed available when needed.

### **1. *Bed Needs Relationship to Target Occupancy***

Once the appropriate rate of hospitalization has been applied to the populations at risk for admission to District hospitals (both District residents and those in surrounding areas who use the District’s hospitals), target occupancy can be used to determine the number of beds needed for a particular service citywide.

The methods presented in **Tables 15, 16, and 17** demonstrate how factors can be integrated into a comprehensive need calculation. The following are applied:

- Service area definition using patient origin and market share,
- Demographic models to project utilization, and
- Projection of daily census and the application of target occupancy levels as demonstrated here.

These are recommended elements in an analysis of service and facility proposals that rely upon a finding that changes under consideration to meet identified needs.

### **2. *Pediatric and Obstetrical Beds***

The number of beds that is projected to be needed to provide 99 percent probability that adequate bed capacity will exist for all unscheduled admissions exceeds the number of beds projected for the fifth planning horizon year.

- Pediatric Units – a minimum of ten designated pediatric beds in a unit
  - Pediatric services should be linked through communication technologies and transfer agreements to a regional network of specialized services.
  - The majority of the population at risk should be able to reach the facility in less than one hour’s driving time.
  - Because pediatrics is a specialty where the family, in addition to the patient, plays several important roles, parents and guardians must be accommodated with respect to access to patients in the hospital and a family-centered approach to care.
- Obstetrical Units
  - Hospital obstetrics programs should maintain a minimum volume of at least 1,000 obstetrical cases per year.



- There should be one labor bed for each 250 deliveries annually.
- There should be a minimum of two delivery rooms, one equipped for cesarean sections.
- A maximum ratio of deliveries to delivery rooms shall be 1500:2.
- The hospital should have the capability to perform emergency cesarean sections within 30 minutes notice, including availability of blood bank and anesthesia services.
- A communications link and transfer capabilities should be available, on a 24-hour basis, with a neonatal intensive care unit and a high-risk obstetrical unit. This implies that each OB unit is linked to a regional perinatal care network

### **B. Accessibility**

Reasonable access to care should be made available to residents of the District, and in particular low-income persons, racial and ethnic minorities, women, handicapped persons, other underserved groups, and the elderly. In considering policy initiatives or regulatory actions to address this standard, it should be understood that lack of insurance and other financial resources is a greater barrier to access acute inpatient services in the District than are the number of hospital beds or the geographic location of hospital facilities.

In light of the ethnic and racial diversity of the region, and its growing number of recently arrived immigrant populations, all hospitals should have translation, sign language interpretation, and/or interpreter capabilities for the major languages of non-English-speaking patient populations and ensure staff are aware of the cultural mores of the population.

For proposals to relocate inpatient beds, it should be assured that the population served has reasonable access to the acute care beds at the new site or will have comparable access to neighboring acute care facilities.

The impact of proposed changes in capacity on financial access will be analyzed in terms of the effects of those changes on the ability of medically underserved individuals, notably Medicaid enrollees and uninsured individuals, to obtain medically necessary treatment. Charity Care programs that extend services, collaborative agreements with organizations with obligations to serve this population, and other special features to preserve access will be considered.

### **C. Continuity**

To provide continuity of care, hospitals should have the following standards:

- All hospitals should have written policies and agreements providing for rapid communication with relevant specialty care units elsewhere, and for the transfer of patients to specialized units outside of their facility.

- Hospitals with specialized intensive care units should provide agreements with hospitals for the transfer of those patients requiring specialized care to their units.
- Hospitals should develop formal agreements with providers who see uninsured patients so that they have admitting privileges to hospitals; these hospitals should discharge patients back to their providers.

### **D. Quality**

To provide quality care, hospitals should have the following standards:

- Each hospital should provide assurances that the proposed facility or unit will be designed, staffed, and operated in compliance with applicable local and federal licensure requirements.
- Each hospital should be in compliance with all mandated federal and District health and safety regulations, applicable Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and other appropriate national accrediting organization standards, and applicable state certification standards.
- Each hospital should participate in a District-wide discharge data program so that information will be available to analyze and disseminate comparative performance measures related to services provided.
- Each hospital must have a multidisciplinary continuous quality improvement program for improving health outcomes.
- Each hospital should provide documentation of quality management efforts including problem identification, analysis, action plan, implementation, and re-evaluation.
- Each hospital should submit information about its ability to meet specific patient safety standards such as:
  - Patient volumes for certain treatments. There are well-documented positive correlations between institution- and physician-specific treatment volumes and patient outcomes. Institutions with greater experience in treating certain conditions seem to offer the best survival odds.
  - Computerized Physician Order Entry (CPOE) systems. These systems have been shown to reduce serious prescribing errors by 50 percent.
  - Staffing - Staffing ICUs with physicians who are at least eligible for certification in critical care medicine is necessary.

### **E. Acceptability**

### **F. Cost**

Cost criteria include the following:

- All hospitals should provide information on the financial viability of proposals for new construction or renovation to existing facilities should be consistent with costs for similar facilities and patient units in the Washington, D.C., metropolitan area.

### VI. GOALS AND OBJECTIVES

The following goals and objectives are designed to address the issues related to acute health care services.

#### **Goal 1:**

**Monitor all health care delivery entities to ensure that comprehensive acute health care services are available to all District residents.**

#### ***Objectives:***

- 1.1 Develop a comprehensive integrated acute care health system that is financially accessible to all District residents.
- 1.2 Support and provide technical assistance to the D.C. Health Care Alliance, supporting agencies and organizations to ensure that everyone has access to quality health care regardless of race, class, gender, or sexual orientation.
- 1.3 Collaborate with District agencies, committees, and task forces to develop strategies for maintaining the viability of the health care safety net.
- 1.4 Develop tools and benchmarks for tracking indicators of access to both primary care (for example, ambulatory care-sensitive hospital admissions for certain chronic conditions) and acute care services, and apply these to a District-wide hospital discharge database to assess the state of access to care by patient characteristics (including diagnosis and patient origin) and by health care facility.
- 1.5 Design effective health policy interventions that become part of the continuing evolution of District safety-net services (starting with the Alliance and extending to other initiatives to, for example, extend coverage to a larger proportion of the District's uninsured population) and part of the continuing effort to promote a high-quality, cost-effective, comprehensive, and coordinated system of care that is particularly attuned to the needs of the Washington, D.C., metropolitan area.
- 1.6 Study innovative ways for a facility to meet their charity care obligations.
- 1.7 Support the conversion of unused hospital capacity to other health-related services that are needed as identified in the State Health Systems Plan.
- 1.8 Work collaboratively with a cross section of providers and consumers to analyze the issues of the numbers and utilization of licensed versus staffed acute care beds in District hospitals.
- 1.9 Support the efforts and provide technical assistance to the Mayor's Health Policy Council, the DCHA, and the District of Columbia Primary Care Association (DCPCA) in their efforts to develop strategies for addressing health workforce shortages in areas such as primary care physician services, inpatient nursing services, and others.

- 1.10 Update the bed-need methodology on an annual basis by incorporating the most recent hospital inpatient and outpatient utilization data and population statistics. This would entail agreement on accurate, timely, and readily available sources of information on population demographics, the use of health care services and facilities, programs, and human resources available in the area.

### **Goal 2:**

**To ensure conduct a longitudinal study on the financial factors that are impacting the delivery of acute care services in the District.**

#### ***Objectives:***

- 2.1 Review and compare hospital costs, charges, revenues, utilization, patient origin data, and other factors impacting on service delivery with other providers of the same or similar service.
- 2.2 Convene an advisory panel composed of representatives of the various health care interests to examine the financial components and other factors influencing the delivery of health care in the District, such as malpractice insurance coverage and claims, the District's wage index, costs associated with recruitment and retention of scarce health care professionals, teaching costs, and the costs of excess and duplicative inpatient capacity.
- 2.3. Encourage Certificate of Need (CON) applications that meet the standards identified in the cost criteria section.
- 2.4 Develop approaches to identifying the impact of proposed changes upon District Medicaid reimbursement, with recognition of projects that estimate a corresponding reduction of reimbursement levels.
- 2.5 Encourage CON applicants to consider cost-effective alternatives to minimize excess hospital capacity.

### **Goal 3:**

**To improve the quality of data for planning of all acute care hospital services**

#### ***Objectives:***

- 3.1 Develop a comprehensive hospital data system in the District, which would include all District hospitals' outpatient data and coordinate annually with similar database operations in the neighboring states of Maryland and Virginia to produce data on cross-boundary flows of hospitalized patients.
- 3.2 Coordinate collection of hospital patient population and utilization statistics, plus profiles of hospital facilities and services (including inventories of licensed and staffed beds by category) with the DCHA to ensure an accurate, comprehensive survey of hospital data.
- 3.3 Prepare an annual report of hospital utilization statistics collaborating with the DCHA.

- 3.4 Coordinate with other agencies and organizations to ensure that the statistics are consistent across all reporting entities, including:
- The American Hospital Association annual survey of hospitals
  - Annual hospital cost reports submitted to CMS
  - D.C. Office of Planning, State Center for Health Statistics, and SHPDA
  - Virginia Health Information, the Commonwealth of Virginia's state health data organization
  - The Maryland Health Care Commission—the state's health data agency
  - The MWCOG.
- 3.5 Seek full compliance with SHPDA law, section 6, participation in a program that produces standard discharge data abstracts in a timely fashion to a coordinating organization with the capability to edit the data for accuracy and completeness, analyze the data, and provide publicly available information on inpatient and outpatient activity in District hospitals.

### **Goal 4:**

**Review the extent to which District health care providers are complying with accreditation bodies and governmental regulations as they relate to the delivery of quality care.**

### ***Objectives:***

- 4.1 Monitor access to care, particularly quality-of-care and patient safety indicators in District hospitals.
- 4.2 Develop minimum service volume standards for the review of CON applications (see section on volumes/outcomes as a patient safety standard, above).
- 4.3 Support the efforts and provide technical assistance to interested parties to encourage the development of quality of care indicators for health care report cards.
- 4.4 Develop a quality management program for increased accountability.

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